

## REMARKS

### Claim Rejection Due to Informalities

Applicants have addressed Examiner's rejection of claim 16 due to informalities. Applicants have amended claim 16 by correcting the spelling of "nanostructerd" to nanostructured.

### Claim Rejections Under 35 USC 112

Applicants have addressed Examiner's rejection of claims 11-13 and 19 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

Applicants have amended claims 11-13 to include a recitation of the process of claim 5 before adding the additional process steps.

Applicants respectfully disagree with Examiner's assertion that claims 11-13 and 19 are indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

Claims 11-13 recite the process for producing the nanotube described in claim 5 but add respectively the additional limitations of high shear stirring, homogenizing, and centrifuging the carbon nanotube-polymer solution before casting. High shear stirring, homogenizing and centrifuging are all methods that are well known in the art. i.e. Van Nostrand's Scientific Encyclopedia, 9th Edition, Volume 1, John Wiley & Sons Inc., NY, 2002. p. 706-707, 1781. Additionally, the specification recites high shear stirring, homogenizing and centrifuging as optional steps in one embodiment of the invention. (See Applicants' original Specification pg 17 lines 21-23). In the preferred procedure for preparing single wall carbon nanotube-polymer composites described in the specification, one preferred example of homogenizing the solution is described wherein

the solution is stirred for five 10-minute intervals at 20,000 rpm until a highly homogenous solution resulted. (See Applicants' original specification pg 18 lines 19-20). Homogenizing would include any method resulting in a homogenous solution. Moreover, the specification also describes one example of centrifuging the solution at 600 rpms for 2 minutes. (See Applicants' original specification pg 18 lines 21-23). Finally, the specification further describes homogenization, high shear stirring and centrifuging, and states that a variety of speeds, times and temperatures can be used for each. (See Applicants' original specification pg 20 line 13 - pg 21 line 3) Therefore, claims 11-13 particularly point out and distinctly claim the subject matter that the inventor regards as the invention.

Additionally, claim 19 particularly points out and distinctly claims the subject matter that the inventors regard as the invention. Claim 19 teaches the carbon nanotube-polymer actuator taught in claim 5, but also teaches electro-chemical response including an osmotic mechanism. The specification supports this claim by stating that solvents acting via osmotic effects significantly alter the degree of ionization in actuators. (See Applicants' original specification pg 6 lines 11-17). Additionally, page 8 of the specification teaches that osmotic effects have a significant impact on the overall mechanism under which the present invention may function. (See Applicants' original specification pg 7 line 15 – pg 8 line 2).

#### Claim Rejections Under 35 USC 103

Examiner rejected claims 1-22 under 35 U.S.C. 103(a) as obvious over the Baughman patent (US 6,555,945) in view of the Landi et al article ("Single Wall Carbon Nanotube-Nafion Composite Actuators"). However, Applicants respectfully suggest that Landi is not "prior art" as described in Section 103 and therefore cannot be used as a reference to establish obviousness.

Examiner was correct in stating that section (a) of 35 U.S.C. 103 forms the basis for all obviousness rejections. However, this section states that:

A patent may not be obtained...if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

In this case, the Examiner used the Landi article as the basis for finding the present invention obvious. However, the MPEP states in relevant part:

Where the applicant is one of the co-authors of a publication cited against his or her application...the applicant may overcome the rejection by filing a specific affidavit or declaration under 37 CFR 1.132 establishing that the article is describing applicant's own work. An affidavit or declaration by applicant alone indicating that applicant is the sole inventor and that the others were merely working under his or her direction is sufficient to remove the publication as a reference under 35 U.S.C. 102(a). *In re Katz*, 687 F.2d 450, 215 USPQ 14 (CCPA 1982).

MPEP §715.01(c).

Each of the inventors listed on the application of the present invention has signed a 1.132 affidavit (attached hereto) swearing that they were the sole inventors of the present invention, and that the other two authors listed on the Landi publication, Jeffrey L. Alleman and William VanDerveer, were merely working under their direction. Therefore, Applicants respectfully request that the Landi article be removed as a publication reference.

To establish a prima facie case of obviousness the prior art reference must teach or suggest all of the claim limitations. See MPEP §2103. Since Landi is believed to be

an invalid §103 reference, Applicants assert that claims 1-22 are unobvious in light of Bauman as Bauman fails to teach all of the limitations of Applicants claims 1-22. For example, the present invention teaches a carbon nanotube-polymer composite actuator, whereas Bauman does not. See Applicant's Original Claim 1.

### CONCLUSION

For the foregoing reasons, Applicants respectfully request that the examiner allow original claims 1-10 and 14-22 and amended claims 11-13 as indicated on the attached complete listing of claims.



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